Brain Friendly Learning

How can we know how to teach effectively without the knowledge of how students learn effectively?

To learn – we use one thing – the brain.

If we understand how this works – then we can plan our teaching accordingly. Working with the brain – not against it.

The world's largest computer is useless – without understanding its operating system. The same applies to the brain, except of course the brain is infinitely more powerful than any mere computer we have invented.

We actually have 3 brains! Each has evolved after the other.

PRIMITIVE BRAIN

This is found at the base of your skull. It keeps your heart beating and your lungs breathing. It tells you to fight or run when in danger. It controls your instincts. It is this brain that makes your mouth go dry, hands sweaty etc when in front of a new class. It is telling you it feels uneasy, in danger so fight or run!! This is why nervous teachers are often seen pacing the floor. The good news is we can control this instinct.

MIDDLE BRAIN

This controls your hormones, immunity, sexuality, emotions and long term memory. Look at the last 2 again. Ring any bells? Do you remember where you were when Princess Diana died? Do you remember your first day at school?

Anything highly emotional often finds its way into our longer term memory. Now we know why. Think of how you can build on facets of this in class. Fun and enjoyment are key to memory.

The middle brain is also the switchboard. New information comes in here and the middle brain will decide whether it needs to be passed onto the thinking brain or to just discard. Remember it is the part which also recognises emotions. Please it with a positive emotion and it will pass it on. This is where you want the material you are teaching to go. So make it enjoyable! Never, ever let your subject seem like a topic to be endured – have you never seen the film Dead Poets Society?!

Have you got a favourite teacher from school? I know I have and it was due to him that I continued his particular subject through to university. Who knows, it may also be due to him that I am where I am now. One thing is for sure, favourite teachers make things enjoyable don't they? Do not misinterpret enjoyment as a substitute for real learning. As we have seen – it is quite the opposite.

In fact, if students are unhappy in class, they begin to feel stressed. The middle brain will try to suppress this information to prevent further stress. Ever been asked a question in public or in a meeting and your mind goes blank? This is your middle

brain refusing to pass on information to your thinking brain. If you were happy and relaxed the middle brain will simply pass it on seamlessly.

If students face this poor learning experience where they are never happy studying, it is often a vicious circle. They feel poor at learning, and tell themselves this. The brain reacts accordingly.

THINKING BRAIN (Neo-cortex)

This is far bigger than the rest, is newer than the rest and sits over the rest. It is extraordinary. It contains around 100 billion brain cells, a number impossible to visualise.

What is a brain cell? Think of it as an octopus. Every time you use your senses, it creates an impression in the head of the cell which then travels through the legs (dendrites – from the Greek for branch). It then crosses over to the legs (dendrites) of another cell. These new connections, if performed often enough then become permanent – that's why you don't have to relearn riding a bike. Hopefully this makes you realise how important it is to recap material in class.

Therefore, intelligence is not evaluated by the number of brain cells you have, but the number of connections between them you have made. So the more you use your brain – the more intelligent you become. Much like a muscle. No wonder one of the most popular books this decade has been one called "The Mind Gym".

The brain will therefore thrive when making new connections – novelty. Conversely it will decline with lack of stimulation. Incidentally have you ever noticed how the Summers seemed to last forever when you were young and now time seems to fly by? This is because our brains were constantly facing new things, making new connections when young. This required thinking brain activity and so made it more memorable. Now, very little is new to you, so the brain does not have to be so active as it has seen it all before. Therefore the brain ignores it and so it is not memorable and thus creates the impression that time goes quicker.

The thinking brain consists of two halves or hemispheres. The left brain deals with speech, logic and numbers. The right brain deals with melody, patterns and intuition. Recent research shows this to be true but also that there is a lot of crossover. However, do you want your students to get 100% or 50%? Do you want them to use all their brain or half?

Traditional teaching has taught to the left brain primarily. However we should teach to the whole brain obviously. This is why we find it easy to remember words to songs for instance. It is where the saying "a picture can paint a thousand words" comes from. We know this to be true – now we know why it is true – more importantly we can now start using this knowledge to help our students.

Mind maps for instance – their popularity is based upon the fact that the process uses the logic of the left brain with the artistry of the right. From my experience, students love some of my spider diagrams when I am explaining difficult topics.

How do you recognise somebody you know? Even if you see them in the distance – you know it is them. How? Do you systematically check all their features one by one – or is it just the global, bigger picture that you recognise? It is the latter. We see patterns.

Get students to create one page posters of topics. It is this pattern/global thinking that will help them learn deeper and more efficiently than logical steps alone. Note: Logic is vital, just do not neglect the other half of the brain.

This just a taster of how the huge amount of recent research on the brain can help us learn how to learn, and thus how to teach. Lecturers extras will be updated regularly to keep you and your students on your toes!

Happy Teaching.

Richard Clarke

Fact:

A 12 week old human embryo is developing 2,000 brain cells a second! An adult bee has 7,000 in total. The human embryo would need 3 seconds to get that amount.

Ps. Some final good news – we have 7 different intelligences to use – to make sure you teach to them all – watch for forthcoming article……